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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,958	12/11/2003	Toshiharu Furukawa	ROC920030282US1	9305
30206	7590	12/23/2005	EXAMINER	
IBM CORPORATION ROCHESTER IP LAW DEPT. 917 3605 HIGHWAY 52 NORTH ROCHESTER, MN 55901-7829			MENZ, DOUGLAS M	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/732,958	Applicant(s) FURUKAWA ET AL.	
	Examiner Douglas M. Menz	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Search History</u> . |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group II, claims 20-28, in the reply filed on 10/3/05 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 20-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Adkisson et al. (US 6563131).

Regarding claim 20. Adkisson discloses a portion of a wrap-around-gated field-effect transistor (Figs. 1-12), the portion comprising:

an silicon-on-insulator (SOI) island (1024, Figs. 10-11) comprising side surfaces forming a periphery and extending, for a length, along a major axis in the horizontal direction; and

a gate electrode (Figs. 8A-C, G, Fig. 11D and Col. 4) surrounding and supporting the SOI island, the gate electrode extending in a vertical direction from a handle wafer and having a thickness, in the horizontal direction, less than the length of the SOI island such that a portion of the SOI island extends on one side of the gate electrode and another portion of the SOI island extends on another side of the gate electrode (Fig. 11D), the gate electrode comprising:

a first portion below the SOI island, a second portion on one side of the SOI island, and a third portion above the SOI island such that the gate electrode extends more than half-way around the periphery of the SOI island (Figs. 8A-C, G, Fig. 11D and Col. 4).

Regarding claim 21, Adkisson further discloses wherein a first edge face of the SOI island extends outward on one side of the gate electrode (towards D Fig. 11D) and a second edge face of the SOI island extends oppositely outward on another side of the gate electrode (towards S, Fig. 11D).

Regarding claim 22, Adkisson further discloses wherein the gate electrode has a cross-sectional profile that is C-shaped (Figs. 8C, 9C, 10C, 11C and Col. 4, lines: 45-50).

Regarding claim 23, Adkisson further discloses wherein a portion of a top surface of the SOI island is exposed (1024, Fig. 11B).

Regarding claim 24, Adkisson further discloses wherein at least a portion of the SOI island (1024, Fig. 11B) is supported underneath by an oxide layer (BOX, Fig. 11B) on the handle wafer.

Regarding claim 25, Adkisson discloses a field-effect-transistor comprising:
a silicon-on-insulator (SOI) island (1024, Figs. 11A-D) comprising a surface periphery and two edge faces, the SOI island oriented substantially in a horizontal direction; a wrap-around gate electrode (G, Figs. 11C-D) oriented in substantially a vertical direction intersecting with the SOI island in-between the two edge faces such that the SOI island, such that the wrap-around gate electrode extends more than half-way around the surface periphery of the SOI island;
a source region (S, Fig. 11D) formed on a first part of the SOI island, on one side of the gate electrode (G, Fig. 11D); and
a drain region (D, Fig. 11D) formed on a second part of the SOI island, on another side of the gate electrode.

Regarding claim 26, Adkisson further discloses wherein a portion of a bottom surface of the SOI island on both sides of the gate electrode is exposed (Fig. 11D).

Regarding claim 27, Adkisson further discloses wherein at least a portion of the SOI island is supported underneath by an oxide layer (BOX, Fig. 11B).

Regarding claim 28, Adkisson further discloses wherein the wrap-around gate electrode (G, Fig. 11D) extends entirely around the surface periphery of the SOI island (Fig. 11D).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas M. Menz whose telephone number is 571-272-1877. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DM

 12/21/05